"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, D.N.; GEL'MAN, N.S.

Determination of the oxygen concentration in biological fluids by the method of polarography with stationary hard electrodes. Biokhimiia 27 no.3:532-537 My-Je '62. (MIRA 15:8)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.
(OXYGEN) (POLAROGRAPHY) (BODY FLUIDS)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

KULAYEV, I.S.; OSTROVSKIY, D.N.; BELOZERSKIY, A.N.

First products of orthophosphate assimilation from the culture medium by the mycelium of Penicillium chrysogenum Q-176. Dokl. AN SSSR 135 no.2:467-470 N '60. (MIRA 13:11)

1. Moskovskiy gosudarstvenny universitet im. M.V.Lomonosova i Institut biokhimii im. A.N.Bakha AN SSSR. 2. Chlen-korrespondent AN SSSR (for Belozerskiy).
(Penicillium) (Phosphorus metabolism)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, D.N.; KHARAT'YAN, Ye.F.; GEL'MAN, N.S.

Effect of pancreatic lipase on the protoplasts of Micrococcus lysodeikticus in connection with the problem of the localization of respiratory enzymes in bacteria. Biokhimiia 29 no. 1: 154-160 Ja-F '64. (MIRA 18:12)

1. Institut biokhimii imeni Bakha AN SSSR, Moskva. Submitted June 22, 1963.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

PULATOV, U.Yu.; PAK, S.D.; OSTROVSKIY, E.M.

Field experiments in impact compaction carried out in the canal M-2. Mat. po proizv. sil. Uzb. no.15:221-231 '60. (MIRA 14:8)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut irrigatsii, Tashkent.
(Golodnaya Steppe--Irrigation canals and flumes)
(Soil stabilization)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

NEFEDOV, V.P.; OSTROVSKIY, E.Ya.

Geological and geophysical interpretation of aerogeophysical materials. Geol. mest. red. elem. no.20:52-84 '63. (MIRA 17:5

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, F., inzh.; TARKOVSKIY, E., inzh.

Pressure vessel used for antiseptic compositions. Stroitel' no.6:3[illegible]
Je '58. (MIRA 11:7)
(Pressure vessels)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

KULAYEV, I.S.; BELOZERSKIY, A.N.; OSTROVSKIY, L.N.

Studying acid-soluble phosphorus compounds of penicillium chrysogenum Q-176 under different conditions of cultivation. Biokhimiia 26 no. 1:188-199 Ja-F '61. (MIRA 14:2)

1. Institute of biochemistry, Academy of Sciences of the U.S.S.R., and Faculty of Biology and Soil Sciences, State University, Moscow.
(PENICILLIUM) (PHOSPHORUS METABOLISM)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, [illegible]

Mechanical [illegible]
no. [illegible]

Investigat[illegible]
pection of [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

[illegible]STROVSKIY, E.V., [illegible], Ye[illegible]; [illegible]
nauk, prof., retsenzent, [illegible], [illegible]
[illegible], N.Yu., [illegible], red.

[illegible] handbook for the [illegible] of [illegible] [illegible]
[illegible] spravochnik konstruktora [illegible] tvennykh [illegible].
Moskva, Mashinostroenie, [illegible]. [illegible] p. [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

LASHCHIVER, F.M., inzh.; OSTROVSKIY, G.A., inzh.

Safety measures concerned with electricity in construction.
Mekh. stroi. 18 no.11:20-21 N '61. (MIRA 16:7)

(Excavating machinery--Safety measures)
(Electric welding--Safety measures)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

MALYUCHKOV, O. T.; PAVLOVSKAYA, V. S.; OSTROVSKIY, G. A.

Method of the reversible change of the field of permanent magnet of a nuclear magnetic resonance-spectrometer. Zav. lab. 28 no.12:1457-1458 '62. (MIRA 16:1)

1. Moskovskiy institut stali i splavov.

(Nuclear magnetic resonance and relaxation)
(Spectrometer)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

ZELENOVA, V.D.; OSTROVSKIY, G.A.; SHEPELYAKOVSKIY, K.Z.

Growth of the austenite grain in steel during induction heating. Metalloved. i term. obr. met. no.6:30-35 Je '63. (MIRA 16:6)

(Steel—Heat treatment)
(Metal crystals--Growth)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

SHEPELYAKOVSKIY, K.Z., kand.tekhn.nauk; ZELENOVA, V.D., kand.tekhn.nauk; OSTROVSKIY, G.A., inzh.

Structure and properties of an induction-hardened layer of steel. Metalloved. i term. obr. met. no.9:24-29 S '62. (MIRA 16:5)

1. Moskovskiy avtomobil'nyy zavod (ZIL) i Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Steel—Metallography) (Induction hardening)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 10690-63 EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD

ACCESSION NR: AP3001653 S/0129/63/000/006/0030/0035

54

AUTHOR: Zelenova, V. D.; Ostrovskiy, G. A.; Shepelyakovskiy, K.Z.

TITLE: Growth of austenitic grain in steel during induction heating

18

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 6, 1963, 30-35

TOPIC TAGS: austenitic grain, steel, induction heating, martensite steel, austenite steel

ABSTRACT: The initial austenitic grain, whose size depends on the dispersibility of the original structure, determines the grain size of steel made by induction heating. The rate of heating, from 8 to 1000 degrees per second does not affect size of the original grain; but further austenite growth depends on heating rate, slow rate and high temperature causing grain growth. Decreasing austenite grain size from No. 8 to 12 decreases roasting and increases strength of martensite steel. Use of inherently fine grained steel permits an extension of the temperature interval and induction heating rate in which fine austenitic grain can still be obtained. Use of fine grained

Card 1/2

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 10690-63
ACCESSION NR: AP3001653

0

steel and of optimal inductive heating rates are the essential means for increasing the strength of machine parts. Orig. art. has: 3 tables and 6 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 09Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 010 OTHER: 003

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 10690-63 EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD

ACCESSION NR: AP3001653 S/0129/63/000/006/0030/0035 54

AUTHOR: Zelenova, V. D.; Ostrovskiy, G. A.; Shepelyakovskiy, K.Z.

TITLE: Growth of austenitic grain in steel during induction heating 18

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 6, 1963, 30-35

TOPIC TAGS: austenitic grain, steel, induction heating, martensite steel, austenite steel

ABSTRACT: The initial austenitic grain, whose size depends on the dispersibility of the original structure, determines the grain size of steel made by induction heating. The rate of heating, from 8 to 1000 degrees per second does not affect size of the original grain; but further austenite growth depends on heating rate, slow rate and high temperature causing grain growth. Decreasing austenite grain size from No. 8 to 12 decreases roasting and increases strength of martensite steel. Use of inherently fine grained steel permits an extension of the temperature interval and induction heating rate in which fine austenitic grain can still be obtained. Use of fine grained

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 10690-63
ACCESSION NR: AP3001653

0

steel and of optimal inductive heating rates are the essential means for increasing the strength of machine parts. Orig. art. has: 3 tables and 6 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 09Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 010 OTHER: 003

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Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

S/032/62/028/012/007/0[illegible]
B104/B1[illegible]

AUTHOR: [illegible]alyu[illegible]nkov, [illegible] T., Pavlovskaya, V. S., and [illegible]

TITLE: A method of reversibly varying the field of a permanent magnet [illegible] n.m.r.-spectrometer

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 19[illegible], 1[illegible]

TEXT: In studying broad n.m.r. lines it is necessary to vary the intensity H of the main field when the mode of operation of the generator is given. A method of varying the field strength of a permanent magnet is [illegible] which covers a wider range than has hitherto been possible. This is [illegible] by means of magnetic coils inserted in the gap (Fig. 1). The magnetic flux is much changed by the coils: only a part of the magnetic flux [illegible] coils producing a demagnetizing field, whilst the other part [illegible] off. Using small coils [illegible] can be kept low. Tests were made with a magnetization assembly for ± 2[illegible] be designed earlier ([illegible] V. S. Pavlovskaya, Nauchnyye doklady Vysshey shkoly, no. [illegible]

Card 1/[illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

S/072/[illegible]
[illegible]

A method of reversibly varying [illegible]

[illegible] magnetization [illegible] applied and removed [illegible] magnetization [illegible] magnet could be detected. To produce ±2[illegible] oe in the gap it was [illegible] the coils [illegible] resulting in a field of ±[illegible] field strength was produced by changed inductance [illegible] greater field [illegible] ± [illegible] There are [illegible] figures.

ASSOCIATION: [illegible] institut [illegible] and Alloys

Fig. [illegible] drawing of the magnetic fixture.

Fig. [illegible] magnetization assembly. Legend: [illegible] mm thick, 400 turns [illegible] electronics.

Card [illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, Grigoriy Aleksandrovich, inzh.; ALTONOVA, N.N., inzh., red.

[Automation of the transportation of concrete fillers; experience of the Reinforced Concrete Products Plant No. 1 in Tashkent] Avtomatizatsiia transportirovaniia zapolnitelei betona; opyt zavoda zhelezobetonnykh izdelii No. 1 v Tashkente. Moskva, Stroiizdat, 1964. 22 p. (MIRA 18:2)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.D.

[illegible]

[illegible]

1. Iz Pa[illegible]

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.D.

Movement for a high level of sanitation in Pskov Province.
Gig. i san. 25 no.11:58-61 N '60. (MIRA 14:1)

1. Iz Pskovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.
(PSKOV PROVINCE—SANITATION)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

KANTOROVICH, R.A., [illegible]
OSTROVSKIY, [illegible]

Comparative study of the epidemiological effectiveness of the inoculation with live and killed poliovirus vaccines. (1959-1960). Trudy [illegible] inst. epid. i mikrobiol. [illegible] 1964.
MIRA [illegible]

1. Iz laboratorii poliomiyelita [illegible] imeni [illegible], otdela virusologii [illegible] meditsinskoy AMN [illegible] sanitarno [illegible] i leningradskoy [illegible].

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

Skogo gos. univ.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

ZALOGIN, Nikolay Savel'yevich; OSTROVSKIY, G.G., retsenzent; SHAPIRO, I.Ya., red.; NOVIK, A.M., red.izd-va; SAMOKHVALOV, Ya.A., inzh., red.izd-va; STARODUB, T.A., tekhn. red.; MATUSEVICH, S.M., tekhn.red.

[Mathematical problems for competitive examinations] Konkursnye zadachi po matematike. Kiev, Gostekhizdat, USSR, 1964. 615 p. (MIRA 17:3)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

O[illegible]NOVSKIY, G. G.

USSR
On: "Russian Discoveries [illegible] Antarctic"

SOURCE: Zvezda Moz, February [illegible]. Current Digest of the Soviet Press, [illegible], 1947), page [illegible]. (In CIA Library)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

VECHTOMOV, M.I., inzh.; KUDRYAVTSEV, V.A., inzh.; MALKES, D.A., inzh.; OSTROVSKIY, G.I.; POVERENNYY, L.D.; SUSHKOV, P.M., inzh.; TYULENEV, N.Z., inzh. Prinimali uchastiye: GALYAMOVA, N.S., inzh.; FUTEYEVA, N.P.; IZRAYLOVICH, Ye.A., inzh.; MARCHENKO, G.A., inzh.; MALYGINA, Z.S.; SOKOLOVA, Ye.A.; SOKOV, V.N., inzh.; TARASOVA, S.N.; TASHAYEV, A.L., inzh.; FILIMONOV, S.V.; DRALICH, K.F., inzh., nauch. red.; NOVITCHENKO, K.M., inzh., nauchnyy red.; SIMAKOV, S.N., inzh., nauchnyy red.; FAKTOROVICH, Yu.A., kand. tekhn. nauk, nauchnyy red.; STUPIN, Ye.N., otv. red.; LUTOV, N.S., red.; IVANOV, V.S., red.; BAGUZOV, N.P., glav. red.; VOLCHEGORSKIY, M.S., zam. glav. red.; DOBRYNIN, S.N., red.; NAZAROV, I.A., red.; KOLESNIKOV, S.I., red.; MEL'NIKOV, N.P., red.; SUSNIKOV, A.A., red.; STAROVEROV, I.G., red.; LYTKINA, L.S., red. izd-va; GORDENEV, P.A., red. izd-va; OSENKO, L.M., tekhn. red.

[Handbook for the designer of industrial, residential, and public buildings and structures; organization of construction and execution of building and assembly operations. Industrial construction] Spravochnik proektirovshchika promyshlennykh, zhilykh i obshchestvennykh zdanii i sooruzhenii; organizatsiia stroitel'stva i proizvodstvo stroitel'no-montazhnykh rabot. Promyshlennoe stroitel'stvo. Pod red. P.M.Sushkova. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 372 p. (MIRA 14:2)

(Industrial buildings)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 26062-65 EWT(d)/EPF(n)-2 Po-4/Pq-4/Pg-4/Pu-4/Pk-4/Pl-4 IJP(c) 47 33 B+1

WW/BC

ACCESSION NR: AT4045210 S/2588/64/000/006/0183/0198

AUTHOR: Ostrovskiy, G.M.

TITLE: Some methods of calculating optimal automatic control systems

SOURCE: Avtomaticheskoye upravleniye i vychislitel'naya tekhnika, no. 6, 1964, 183-198

TOPIC TAGS: variational technique, dynamic programming, automatic control, optimization, differential equation, boundary condition, control system

ABSTRACT: The paper considers a system controlled automatically as a function of time according to the system of differential equations:

$$\frac{dx_i}{dt} = g_i(x_1, \ldots, x_n, u_1, \ldots, u_r), \quad (1)$$

$$i = 1, \ldots, n,$$

where x_i are system coordinates and u_j are control restraints. It is desired to determine $u_j = u_j(t)$ so that, as the system goes from system state $O(o, \ldots, o)$ to state $B(b_1, \ldots, b_n)$, the functional

$$I = \int_{t_0}^{t_1} V(x_1, \ldots, x_n, u_1, \ldots, u_r)\, dt \quad (2)$$

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ACCESSION NR: AT4045210

will be a minimum. It is assumed that the points x_i, u_i lie in a bounded region. The paper presents two techniques of solving the problem for various types of restraints. A variational technique is used to solve the problem in case: a. a condition of the form

$$\left.\begin{array}{l}\varphi_1(u_1, \ldots, u_r) < 0;\\ \cdots\cdots\cdots\\ \cdots\cdots\cdots\\ \varphi_m(u_1, \ldots, u_r) < 0.\end{array}\right\} \quad (3)$$

b. a condition of the form

$$\left.\begin{array}{l}\chi_1(x_1, \ldots, x_n) < 0;\\ \cdots\cdots\cdots\\ \cdots\cdots\cdots\\ \chi_p(x_1, \ldots, x_n) < 0,\end{array}\right\} \quad (4)$$

or c. a condition of the form

$$\int_{t_0}^{t_1} \varphi_i(u_1, \ldots, u_r)\, dt < q_i \quad \text{при } i = 1, \ldots, n. \quad (5)$$

is satisfied. The second half of the paper outlines a solution to the problem by means of a dynamic programming technique. Orig. art. has: 43 formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IE, MA

NO REF SOV: 007 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 16405-65 EWT(d)/EPF(n)-2/EWP(1) Po-4/Pq-4/Pg-4/Pae-2/Pu-4/Pk-4/Pl-4 IJP(c)/ESD(dp)/AEDC(a)/SSD/ASD(a)-5/AFMDC/AFETR/AFTC(p)/RAEM(e) WW/BC

ACCESSION NR: AP4047572 S/0103/64/025/010/1414/1420

AUTHOR: Volin, Yu. M. (Moscow); Ostrovskiy, G. M. (Moscow)

TITLE: One optimum problem

SOURCE: Avtomatika i telemekhanika, v. 25, no. 10, 1964, 1414-1420

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory

ABSTRACT: The problem of quasistatic optimization of contact chemical reactors is considered. The reactor in the form of a long pipe with a stationary layer of a catalyst (a distributed-parameter system) is to be operated in such a manner that the maximum quantity of a specified product component is obtained. The rate of decrease of the catalyst activity depends on certain parameters of the process inside the reactor. Two subproblems are distinguished: (1) With specified initial concentrations of some substances and initial state of the

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L 16405-65
ACCESSION NR: AP4047572

catalyst, find the maximum component yield over a fixed campaign time; (2) With the same conditions, find the maximum average productivity over the campaign time plus catalyst-regeneration time. Differential equations are set up and solved for the above problems. Orig. art. has: 40 formulas.

ASSOCIATION: none

SUBMITTED: 17Jun63 ENCL: 00

SUB CODE: IE NO REF SOV: 003 OTHER: 001

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

S/064/62/000/003/001/007
B110/B101

AUTHORS: Slin'ko, M. G., Ostrovskiy, G. M.

TITLE: Use of computers for controlling contact processes

PERIODICAL: Khimicheskaya prom shlennost', no. 3, 1962, 1 - 7

TEXT: As regards computer control, contact processes fall into the following groups: (A) steady processes in the stable region, using catalysts of long sustained effect, requiring either (a) maintenance of the optimum made that corresponds to given initial conditions, or (b) optimum conditions close to the permissible limit. (B) steady processes in the unstable region with catalysts of long-sustained effect, (C) unsteady processes with decreasing catalyst activity, (D) contact processes with variable composition of the reactor mixture. The following are cases corresponding to each of these groups: (A) (a) reversible exothermal processes (sulfur dioxide oxidation, NH_3 synthesis, reaction of CO with H_2O vapor etc.). Here the optimum conditions can be tabulated with the aid of computers. (b) Irreversible exothermal processes (partial hydrocarbon oxidation; production of ethylene oxide, maleic anhydride, phthalic

Card 1/2

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B110/B101

Use of computers for...

anhydride, propylene oxide, anthraquinone, acrolein, acrylic nitrile). The computer calculates the optimum conditions which are close to the limiting conditions. (a) Unstable conditions can be stabilized also without using a computer. (C) Endothermal process dehydrogenation of isopentane, butane, butylenes, isoamylenes, ethyl benzene, isopropyl benzene, etc. Here the computer rapidly determines the catalyst activity and how this is affected by temperature and time for calculating the optimum conditions. (D) In contact processes where the reaction mixture is of variable composition, either (1) the reaction mixture has to be stabilized or (2) the optimum conditions have to be determined for each moment in time. Here computer determines the actual state of the catalyst and then corrects the process either (1) periodically or (2) whenever the deviation of the calculated from the experimental values exceeds a certain amount. In these ways the application of universal digital and of analog digital computers to contact processes can increase the activity of the catalyst per unit volume as well as the selectivity in complex multi-stage processes. There are 2 figures.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

VOLIN, Yu.M.; OSTROVSKIY, G.M.; SLIN'KO, M.G.

Principle of the maximum in determining the [illegible] exothermic processes. Kin.i kat. [illegible]

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova i Institut kataliza Sibirskogo otdeleniya AN SSSR.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, [illegible]

A method for solving variational problems. Avtom. i telem. [illegible]
n. [illegible] [illegible]
(Automatic control)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

"The Use of Nonlinear Devices in Automatic Regulation Systems of the Third Order," by G. M. Ostrovskiy, Chair of Applied Mechanics, Vestnik Moskovskogo Universiteta, Seriya Matematiki, Mekhaniki, Astronomii, Fiziki, Khimii, No 1, 1956, pp 51-56

The author studies an automatic regulation system whose operation is described by a linear differential equation of the third order

$$\dddot{x} + A\ddot{x} + B\dot{x} + x = 0,$$

where $x = X_{input} - X_{output}$ is the error and A and B are constants.

It is assumed that the variable is already substituted so that the coefficient of x is equal to unity. It is also assumed that coefficients A and B may be changed by changing some of the parameters of the regulation system within the following limits

$$a_1 \leq A \leq b_1, \quad a_2 \leq B \leq b_2.$$

The author then proceeds to find the optimal functions, i.e., those functions assuring an optimum transitory process.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

KAZAKEVICH, V.V. (Moskva); OSTROVSKIY, G.M. (Moskva)

Problem concerning indirect control taking into account coulomb friction in the sensitive element. Avtom. i telem. 24 no.8:1141-1144 Ag '63. (MIRA 16:8)

(Automatic control)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

AUTHOR: Ostrovskiy, [illegible]

TITLE: Nonlinear and Computing Devices as Used for Increasing the Speed Action of Some Automatic Control Systems (Vyeli[illegible] bystrodeystviya nekotorykh sistem avtomaticheskogo [illegible] vaniya pri pomoshchi nelineynykh i vychislitel'nykh ustroystv)

PERIODICAL: Avtomatika i Telemekhanika [illegible] Vol. [illegible] [illegible] SSR

ABSTRACT: Problems connected with the introduction of nonlinear devices into some automatic control systems for improving the quality of control are investigated here. The methods given by the author in Ref [illegible] are extended to some automatic control systems which can be expressed by differential equations of n-th degree. The equation of the error x [illegible] $= Q_{input} - Q_{output}$ read:

$$x^{(n)} + a_1 x^{(n-1)} + \dots + a_{n-1}\dot{x} + a_n x = [illegible] \quad a_0 = 1 \quad [illegible]$$

It is assumed that the parameters of the [illegible] in the domain [illegible] to the a_i values [illegible]

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Nonlinear and Computing Devices as [illegible]
Some Automatic Control Systems

$\bar{c}_i < a_i < \bar{T}_i$ [illegible]

The parameter $a_i = [illegible]$ [illegible] in a manner [illegible] transient process [illegible] overtravel [illegible] is characterized by a [illegible] assumed that in this case the characteristic [illegible] system [illegible] in real negative different [illegible] meters $a_i = [illegible]$ the characteristic [illegible] is an inverse [illegible] were [illegible] of correcting devices to attain that at [illegible] transient process $a_i = [illegible]$ and at its end $a_i = c$ [illegible] $i = 1, [illegible]$ [illegible] is valid [illegible] speed [illegible] to the position of equilibrium at the beginning [illegible] transient process and a high attenuation at its end [illegible] guaranteed. The correcting devices [illegible] in a manner that at a certain moment the [illegible] ruptly change their values. When switching [illegible] the system will have to [illegible] a period [illegible] process when switching over too late a [illegible] forms. The problem now consists of two stages: [illegible]

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Nonlinear and Computing Devices as Used for Increasing the [illegible] of Some Automatic Control Systems

If the control system is expressed by the equation

$$x^{(n)} + c_1 x^{(n-1)} + \ldots + c_{n-1}\dot{x} + x = [illegible] \quad (2)$$

in stage two by the equation

$$x^{(n)} + b_1 x^{(n-1)} + \ldots + b_{n-1}\dot{x} + x = [illegible] \quad (3)$$

A certain moment must be found for the transition from (2) to (3) that the system does not over-travel, whereas the control period will be a minimum one. It is assumed that in the transition from (2) to (3) the derivatives of the initial value until order n-1 change without jumps. Systems are now investigated in which for single disturbance the following initial conditions apply:

$$x_0 < 0, \quad \dot{x}_0 \geqslant 0, \quad \ldots, \quad x_0^{(n-1)} \geqslant 0 \quad (4a)$$

$$\text{or } x_0 > 0, \quad \dot{x}_0 \leqslant 0, \quad \ldots, \quad x_0^{(n-1)} \leqslant 0 \quad (4b)$$

It is shown that a continuous computing device must be connected with the automatic control system. This device [illegible]

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103-19-[illegible]

Nonlinear and Computing Devices as Used for Increasing the High Action of Some Automatic Control Systems

produce the function $\dot{x}F(x, \dot{x}, \ldots, x^{(n-1)})$. The classes of system with the initial conditions of the type of (4a) and (4b) in the case of single initial action are shown. In every individual case where the conditions (4a) and (4b) are not satisfied the control system must be investigated. A third order control system is investigated as an example. There are [illegible] figures and [illegible] references, all [illegible] which are Soviet.

SUBMITTED: September [illegible]

Card 4/4

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M. (Moskva)

Condition for the absence of overshooting in some nonlinear automatic control systems. Avtom. i telem. 22 no.8:980-985 Ag '61. (MIRA 14:9)

(Automatic control)

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L1713

S/044/62/000/010/032/042
B108/B102

AUTHOR: Ostrovskiy, G. M.

TITLE: On one method of improving the quality of control systems with the help of nonlinear computers

PERIODICAL: Referativnyy zhurnal. Matematika, no. 10, 1962, 47, abstract 10V232 (In collection: Avtomat. upr. i vychisl. tekhn., no. 3, M., Mashgiz, 1960, 373 - 418)

TEXT: It is known that after a single impulse the transients of a Lewis system (RZhMat, 1958, 4695) $\ddot{x} + (A - B x)\dot{x} + x = 0$ (A and B are positive constants) depend on B to a considerable degree. The "transient time" (which can be determined in various ways) can be varied by varying B. The problem set is that of finding the form of a function F(x,y) of a more general equation $\ddot{x} + E(x,\dot{x}) + x = 0$ which allows of realizing the "optimum transient process". That's why the author designates this transient an optimum one which, with a perturbation in the form of a single impulse, has no overcorrection whose transient time is minimum. Further, the generalization of the problem in question to the multidimensional case is considered. The article ends with a solution

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

On one method of improving the ... S/044/62/000/010/032/042
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to the problem of constructing such an automatic control system as described by the equation $x^{(n)} + c_1 x^{(n-1)} + \ldots + c_{n-1}\dot{x} + x = 0$ for small values of $|x|$ and by the equation $x^{(n)} + b_1 x^{(n-1)} + \ldots + b_{n-1}x + x = 0$ for large values of x. This would not require any recontrol, and the time of the transients would be a minimum. Abstracter's note: This paper is rather difficult to abstract as it contains no general statement of problem and no determination and formulation of the theorems. The concept of an "optimum transient process" as here defined is obviously of limited application since it may happen a priori that (for a large class of systems) the many transients include none with a minimum time (as for instance for systems of the class $T\dot{x} + x = 1$, $T > 0$ in which all processes take place without recontrol. Editor's note: When searching for an "optimum transient process" (in the meaning of the abstracted paper) the necessity to consider the limitations imposed on the coefficients at the derivatives must be borne in mind. Abstracter's note: Complete translation.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

SLIN'KO, M.G.; OSTROVSKIY, G.M.

Use of calculating machines in the control of catalytic processes. (MIRA 15:4)
Khim.prom. no.3:153-159 Mr '62.
(Catalysis) (Calculating machines)

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

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D201/D304

16.8000

AUTHOR: Ostrovskiy, G.L.

TITLE: A method of improving the performance of control systems by means of non-linear and numerical devices

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 32, abstract 8 V256 (V sb. Avtomat. upr. i vychisl. tekhn., no. 3, M., Mashgiz, 1960, 373-418)

TEXT: The problem is considered of the optimum (fast-acting without over-regulation) control of a system described by the differential equation

$$x^{(n)} + a_1 x^{(n-1)} + \ldots + a_{n-1} x + a_n x = 0,$$

in which the control input is taken as coefficient a_i, restricted by the condition $c_i \leqslant a_i \leqslant b_i$. The necessary and sufficient conditions are derived for the transient response to be monotonic for a

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A method of improving the performance .

VB

step input. The method is described of solving the above problem by means of a hyper-plane of switching, in the phase space of the system so that when the points are crossing it, there occurs a step-change in the system parameters. Certain possibilities as to attaining higher output derivatives are given. In conclusion the example of liquid consumption control is given. 17 references. [Abstracter's note: Complete translation]

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30658

S/569/61/002/000/004/008
D298/D302

13.2000 (1132)

AUTHOR: Ostrovskiy, G.M. (USSR)

TITLE: Automatic control systems with nonlinear (step) parameters

SOURCE: IFAC, 1st Congress, Moscow 1960. Teoriya diskretnykh, optimal'nykh i samonastrayushchikhsya sistem. Trudy, v. 2, 1961, 624 - 638

TEXT: The design of intentionally nonlinear systems is considered. It is assumed that the compensating networks do not operate continuously, but are switched on and off so as to improve system performance. The switching depends on the position, in phase space, of the representative point. The equation which describes the transient process is

$$x^{(n)} + a_1 x^{(n-1)} + \ldots + a_{n-1}\dot{x} + a_n x = 0, \qquad (1)$$

where $\theta_{in} - \theta_{out}$ is the error and a_1 are constants. It is assumed that the parameters of the controller can vary in a certain inter-

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val. Then a_i varies in the interval $\bar{c}_i \leq a_i < \bar{b}_i$. If at the beginning of the transient process $a_i = c_i$, and at the end $a_i = b_i$, then the damping of the system is light at the beginning, and heavy at the end. This can be achieved by means of a compensating network which changes step-wise the value of a_i during the transient processes. The problem is formulated as follows: At the first stage, the system is described by the equation

$$x^{(n)} + c_1 x^{(n-1)} + \ldots + c_{n-1}\dot{x} + x = 0, \qquad (2)$$

and at the second stage -- by equation

$$x^{(n)} + b_1 x^{(n-1)} + \ldots + b_{n-1}\dot{x} + x = 0. \qquad (3)$$

It is required to find such a moment of transition from Eq. (2) to Eq. (3), that the system should have no overshoot, and the control time should be a minimum. Systems with initial conditions

$$x_0 < 0;\ \dot{x}_0 > 0;\ \ddot{x} \geqslant 0, \ldots;\ x_0^{(n-1)} \geqslant 0 \qquad (4a)$$

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$$x_0 > 0;\ \dot{x}_0 \leq 0,\ \ddot{x} \leq 0, \ldots;\ x_0^{(n-1)} \leq 0 \qquad (4b)$$

are considered, such as the system

$$\left.\begin{aligned} \frac{dx_n}{dt} &= -b_1 x_n - b_2 x_{n-1} - \ldots - x_1; \\ \frac{dx_{n-1}}{dt} &= x_n, \ \ldots, \ \frac{dx_1}{dt} = x_2, \end{aligned}\right| \qquad (6b)$$

where

$$x = x_1;\ \dot{x} = x_2, \ \ldots;\ x^{(n-1)} = x_n.$$

The hyperplane

$$F(x_1, x_2, \ldots, x_n) = 0 \qquad (8b)$$

has the following property: if system (6b) has initial conditions (4a), then the necessary and sufficient condition for a monotonic integral curve is

$$F(x_{10}, x_{20}, \ldots x_{n0}) = 0, \qquad (9a)$$

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whereas (4b) the condition is

$$F(x_{10}, x_{20}, \ldots, x_{n0}) = 0. \qquad (9b)$$

The response to a unit step is considered, first for the case (4a), (9a), and then for (4b), (9b). In order to obtain a single expression for both cases, it is noted that in the first case $\dot{x} > 0$, and in the second $\dot{x} < 0$. Hence:

$$a_i = \begin{cases} c_i, & \dot{x}F(x_1, x_2, \ldots, x_n) < 0, \\ b_i, & \dot{x}F(x_1, x_2, \ldots, x_n) \geq 0. \end{cases} \qquad (10B)$$

This means that a computer has to be inserted in the system, so as to process the function

$$\operatorname{sign}[\dot{x}F(x_1, x_2, \ldots, x_n)] = \operatorname{sign} \dot{x} \cdot \operatorname{sign} F(x, \dot{x}, \ldots, x^{(n-1)}). \qquad (11)$$

A block-diagram of the system is shown. Further, the response to an impulse disturbance is considered on the example of a third-order system. It was found that a nonlinear compensating network im-

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proves system performance. In a further (numerical) example, the parameters of a linear- and a non-linear system are listed, for comparison, in a table. From the table it is evident that if the maximum deviation is reduced, the duration of the transient process increases considerably in the linear system, whereas in the non-linear system this is not the case. On the selection of system parameters this is stated that the parameters c_1 are readily selected, on the condition that the system should attain equilibrium as quickly as possible. The selection of b_1 is considered in more detail. The equation of the integral curve after switching, is

$$x = C_2 e^{-\gamma_2 t} + C_3 e^{-\gamma_3 t} + \ldots + C_n e^{-\gamma_n t}. \qquad (15)$$

The conclusion is reached that b_1 should be selected (at the second stage) in such a way that the first root (γ_1) should be as small as possible, whereas the other roots should be large. This condition explains the term "heavy damping", used above. Thus, the roots of the characteristic equation of a second-order system are

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$$\gamma_1 = -(\xi + \sqrt{\xi^2 - 1}); \quad \gamma_2 = -(\xi - \sqrt{\xi^2 - 1}). \qquad (18)$$

Hence, if the damping factor ξ approaches infinity, γ_1 increases in absolute value, whereas γ_2 approaches zero. Further, the selection of parameters in a third-order system is considered, without rigorous mathematical argument. Assume $\gamma_1 = \alpha$. The conditions are found for α to be minimal, i.e. for best transient performance. Analogous reasoning yields the conditions for the parameters b_1 of an n-th order system, namely the first root should be minimal and the other roots should be equal and as large as possible. Hitherto it was assumed that upon switching, all the derivatives, to (n-1)-st order, of the output variable remain continuous. However, this is not always the case. This problem was investigated by the author in detail in earlier work. In order that the process have best performance, the switching should be effected in such a way that the representative point should lie on the plane $F(x_1, x_2, \ldots, x_n) = 0$ after the step change in the (n-1)-st derivative. Finally, the realization of the function $F(x, \dot{x}, \ldots, x(n-1))$ is considered. A dis-

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D298/D302

Automatic control system with ...

cussion followed. In the discussion took part: R. Kulikovskiy (Poland), Sun-Tsyan' (Chinese People's Republic). There are 5 figures, 1 table and 15 references: 9 Soviet-bloc and 6 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: J.C. West, J.L. Douce, R. Naylor, The effects of the addition of some nonlinear elements on the transient performance of a simple R.P.C. System, possessing torque limitation. Proc. IEE, v. 101, part II, no. 80, 1954; I. Bogner, L. Kazda, An investigation of the switching criteria for higher order contactor servomechanisms. Trans. AIEE, v. 73, 1954; I. Flügge-Lotz. Nonlinear transfer function. Journal Applied Physics, April 1954; R. Burns Kay. Transient response of single point nonlinear servomechanism. Proc. NEC, v. 8, 1952.

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24834

S/103/61/022/008/002/015
D274/D302

16.8000 (1031,1121,1344)

AUTHOR: Ostrovskiy, G.M. (Moscow)

TITLE: Conditions for the absence of overshoot in non-linear systems of automatic control

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 8, 1961, 980-985

TEXT: For a second-order system, the condition is found in the form of an equation of an integral curve, and for an n-th order system - in the form of an equation of a hypersurface. The second-order system

$$\frac{d^2x}{dt} = f_1(x,y) \qquad (1)$$

$$\frac{dy}{dt} = f_2(x,y) \qquad (2)$$

is considered, f_1 and f_2 being analytic functions. Passing to coordinates x and $v=\dot{x}$, the first-order equation

$$\frac{dv}{dx} = \frac{\varphi(x, v)}{v} \qquad (4)$$

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is obtained. The integral curve ODE (Fig. 1), obtained by integrating Eq. (4) with initial conditions $v(x_o) = v_o$ for decreasing x, gives the condition for no overshoot. In a more rigorous formulation of the condition, the point O has to approach the origin of coordinates, and the integral curve has to be determined by the condition

$$\lim_{x \to 0} \frac{dv}{dx} = -\gamma_2$$

where γ_2 is a root of the characteristic equation. An n-th order system of equations is considered with variables

$$u_1 = x_1,\ u_2 = x_1, \ldots,\ u_n = x_1^{(n-1)} \qquad (6)$$

In the neighborhood of the origin the system is

$$\frac{du_n}{dt} = a_1 u_n + a_2 u_{n-1} + \ldots + a_n u_1 + \psi(u_1, \ldots, u_n) \qquad (10)$$

$$\frac{du_{n-1}}{dt} = u_n$$

$$\ldots \ldots \ldots$$

$$\frac{du_1}{dt} = u_2$$

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Conditions for the absence

where

$$\lim_{u_i \to 0} \frac{u_1 \cdot \ldots \cdot u_n}{\sqrt{u_1^2 \ldots u_n^2}} = 0$$

It is assumed that the characteristic equation of the linear approximation to (10) has n real distinct negative roots. The conditions for no overshoot are known for linear systems with such roots. It is also known that if the characteristic equation of the linear approximation to (10) has distinct real roots, the position of the integral curve in the neighborhood of the origin is similar in both the linear and non-linear systems: V. V. Nemytskiy and V. V. Stepanov (Ref. 2 Pacheskiy vennaya teoriya differentsial'nykh uravneniy Qualitative theory of Differential Equations, Gostekhizdat, 1948). A small neighborhood of the origin is considered where (10) is replaced by its linear approximation. A hyperplane

$$\Delta_1 u_1 + \Delta_2 u_2 \ldots + \Delta_n u_n = 0 \qquad (12)$$

is considered consisting of the integral curves of the linear system so that the integral curves situated above that hyperplane enter the half-space $u_i > 0$, i.e. the system has overshoot (by the con-

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Conditions for the a[illegible]

ditions for linear systems. Further, the hypersurface [illegible] is considered $u_n = \Phi(u_1, u_2, \ldots, u_{n-1})$ (13)

which is obtained by continuing the integral curves o[illegible] to $t \to -\infty$. It is shown that the equation of the hypersurface [illegible] gives the necessary and sufficient conditions for no overshoot [illegible] the non-linear system. The sought-for equation for [illegible] is

$$\frac{\partial \Phi}{\partial u_1} u_2 + \frac{\partial \Phi}{\partial u_2} u_3 + \ldots + \frac{\partial \Phi}{\partial u_{n-1}} u_n = \Psi(u_1, \ldots, u_n) \quad (15)$$

The boundary condition is

$$u_1 = u_{10}, u_n = -\frac{1}{A_n}(A_1 u_{10} + A_2 u_2 + \ldots + A_{n-1} u_{n-1}) \quad (16)$$

The above method gives a practical means of finding L. The obtained condition can be used not only in already existing control systems, but also for designing systems in which the characteristics (for better quality of control) will vary as a function of the position of the image point in phase space with respect to the surface L. There are 2 figures and 2 Soviet-bloc references.

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OSTROVSKIY, G.M., Cand Phys-Math Sci -- (diss) "Certain problems of the application of non-linear devices in automatic control systems." Mos,1958. Cover, 4 pp. (Mos State U im M.V. Lomonosov.) 100 copies. (KL, 12-58, 96)

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OSTROVSKIY, G.M.

3

2405. Gatrevsky, G. M., Virchyan, A. O., and Vaitanko, T. V. Control with influence according to the first derivative (in Russian), *Inform. nauchn-tekhn. Byul. Nii Labor-prikor Mice maskinostr. i prikorostr. SSR* no. 6, 3-39, 1954; *Ref. Zh. Mekh.* 1956. Rev. no. 2650.

Auto

The effectiveness is shown of introducing influence according to the first derivative into the law of control of slowly varying productive processes. On the example of simple pneumatic regulators, two variants for effecting influence according to a derivative are examined: with the aid of the application of a delaying reverse couple and by means of a separate arrangement, which is called an advance block.

A method is given for comparing the equations of these regulators and for their elementary investigation with the aid of fre-

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OSTROVSKY, G.M.

3

quency representations. Authors examine control with influence according to the first derivative as control with a time variation of the limits of proportionality between the input and output coordinate. With the aid of phase relations the effectiveness is shown of introducing influence according to the first derivative into systems with an isodrome arrangement and pure delaying, as well as of the correcting means. For control systems with a small time constant of the object compared with the time of the isodrome, the use of an advance block is recommended with a "negative derivative," the transmission function of which has the form

$$W(p) = 1 - Tp.$$

Courtesy Referativnyi Zhurnal O. N. Voropaev, USSR
Translation, courtesy Ministry of Supply, England

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

USSR/Processes and Equipment for Chemical Industries - Control and Measuring Devices. Automatic Regulation, K-2

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63990

Author: Ostrovskiy, G. M., Voytenko, T. V., Virob'yan, A. O.

Institution: None

Title: Regulation of Technological Processes with a Forewarning

Original Periodical: Priborostroyeniye, 1956, No 3, 3-8

Abstract: An analysis is presented of the operation of pneumatic and electric devices which permit regulation with a taking into account of the rate of change of the parameter being regulated. Considered are various methods of providing a forewarning in pneumatic systems. The conclusion is reached that corrective devices (of pneumatic as well as of electric type) which provide a forewarning can find extensive utilization in the regulation of various parameters in numerous branches of industry. This applies primarily to regulation of temperature since thermal processes have usually a large time constant and extensive lag which render difficult their regulation.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

28(2)

AUTHOR: Ostrovskiy, G. M., Engineer SOV/119-59-10-3/19

TITLE: A Method for the Measurement of Errors of Solutions Obtained on Simulators With the Help of Electronic Computers

PERIODICAL: Priborostroyeniye, 1959, Nr 10, p 8 (USSR)

ABSTRACT: An error limit of 1-5% is indicated for the error arising in the solution of a set of ordinary differential equations. Its estimation is considered to be of special importance. As the modern theory of errors is extremely complicated, the following method is suggested here: An unknown function (of the errors) is added to every approximate solution of set (1). The function is known to have no great value. The differential quotient with respect to time of this composite function is expanded in a Taylor series. The terms of an order > 2 are neglected. The series is transformed into the form of equation (4) in which the function $\varphi_i(t)$ defines the error of the solution. To obtain this function dx_i is to be differentiated with respect to dt. As this would require a great number of operations, equation (4) is simply integrated, where the integral of the function $\varphi_i(t)$ equals $\psi_i(t)$. To obtain this function it is to be substituted into the right member of equations (1), and the resultant functions z_i (5) are to be integrated. By adding the functions x_i, the functions z_i (5) offer exact

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A Method f the Measurement of Errors of Solutions Obtained on Simulators With the Help of Electronic Computers SOV/119-59-10-3/19

solutions of set (1).

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY G. M.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 75
AUTHOR OSTROWSKIJ G.M.
TITLE On the construction of regions of stability.
PERIODICAL Avtomat. Telemech. 16, 501-507 (1955)
reviewed 6/1956

For a characteristic equation of the type $\sum a_\nu p^{n-\nu} = 0$ the criteria of stability in question are given by the property of the Hurwitz determinants to be positive. For n = 4,5,6 and positive a_ν the influence of the coefficients is investigated by considering a suitable pair of the coefficients a_ν in which the highest Hurwitz determinant is quadratic. In the plane in question at the boundary of the "region of stability" there is a conic section, whilethe Hurwitz conditions of lower order become only linear. There the other coefficients a_ν appear as parameters. Theinfluence of the variation of these parameters to the deformation of the conic section is investigated, where the invariants of the equation of conic section are useful. In the considered cases thus there results a good commanding of the situation.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M.

Distr: 4F1/4E4f

2

Ostrovskii, G. M. Graphical integration of certain nonlinear equations of the theory of oscillation. Vestnik Moskov. Univ. 11 (1956), no. 5, 25–30. (Russian) 1-F\W

Simple geometric procedures are described for constructing the direction field for differential equations of the form $vdv+[f(x)v+g(x)]dx=0$, which arise naturally in vibration problems (with $v=dx/dt$). Extensions are indicated to equations arising from forced vibrations.

W. Kaplan (Ann Arbor, Mich.).

3

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M. (Moskva)

Stability range synthesis. Avtom. i elem. 16 no.6:501-507 N-D '56. (MLRA 9:3)

(Equations, Sextic) (Servomechanisms) (Geometry, Analytic)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

USSR/Automatics and telemechanics - Stability regions FD-307

Card 1/1 Pub. 10 - 1/8

Author : Ostrovskiy, G. M. (Moscow)

Title : Construction of regions of stability

Periodical : Avtom. i telem., Vol. 16, Nov-Dec 1955, 501-507

Abstract : The author gives a method for the construction of region of stability for equations of the fourth, fifth, and sixth degree by means of invariants of quadratic forms. This method permits one to construct rather simply the regions of stability and to investigate them in a general form for comparatively high (fifth, sixth) degrees. The regions of stability are constructed in the plane of any two coefficients of the equation $a_0p^n+a_1p^{n-1}+\cdots+a_n=0$, namely the characteristic equation of a system of differential equations which describes the behavior of a regulated system. Involved is the Hurwitz conditions, which are the criteria for the stability of a regulated system. Two references: B. N. Delone, D. A. Raykov, Analiticheskaya geometriya, State Technical Theoretical Press, 1948; Z. Sh. Blokh, Dinamika lineynykh sistem avtomaticheskogo regulirovaniya mashin [Dynamics of linear systems of automatic regulation of machines], Moscow, 1952.

Submitted : August 3, 1954

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, O.M. (Moskva).

Increasing the speed of certain automatic control systems by nonlinear and computing devices [with summary in English]. Avtom. i telem. 19 no.3:208-216 Mr '58. (MIRA 11:4)
(Automatic control)

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$a_1 \le f_1(x) \le b_1, \quad a_2 \le f_2(x) \le b_2,$

where a_1, b_1, a_2 and b_2 are given constants. The problem is to determine $f_1(x)$ and $f_2(x)$ which (i) result in no overshoot in the response to a unit-step disturbance, and (ii) minimize the length of time during which the error exceeds a prescribed constant.

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Chair Applied Mechanics, Moscow State U.

Ostrovskiĭ G M

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 891
AUTHOR OSTROVSKIJ G.M.
TITLE Applications of non-linear devices in control circuits of third order.
PERIODICAL Vestnik Moskovsk.Univ. 11, 1 51-56 (1956)
reviewed 6/1957

The author investigates simple control circuits which are described by the differential equation:

$$\dddot{x} + A\ddot{x} + B\dot{x} + x = 0.$$

Let A and B be bounded. The author determines those functions $A(x)$ and $B(x)$ for which the control process passes optimally. As optimal a transition function is denoted for which no super-oscillation appears and simultaneously the time until reaching a given value, deviating little from the final value, is a minimum. With the aid of phase curves the sought functions are obtained and it is proved that they really possess the desired properties The optimal functions A and B contain not only the control term x but also its two first derivatives.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M.

Primenenie Nelineinykh Korrektiruiushchikh Ustroistv v Sistemakh Avtomaticheskogo Regulirovaniia Vtorogo Poriadka. G. M. Ostrovskii. *Avtomatika i Telemekhanika*, Nov., 1956, pp. 979-9[illegible]. In Russian. Methods of improving control quality of second-order linear servo-systems by introducing special nonlinear devices.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M.; VOYTENKO, T.V.; VIROB'YAN, A.O.

Preliminary control of technological processes. Priborostroenie no.3:3-8 Mr '56. (MLRA 9:8)

(Automatic control)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M.

Graphic integration of some nonlinear equations in the theory of vibration. Vest.Mosk.un.11 no.5:25-30 My '56. (MLRA 9:10)

1.Kafedra prikladnoy mekhaniki.
(Vibration) (Differential equations--Graphic methods)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, O.N. (Moskva).

Nonlinear corrective devices used in second-order automatic control systems [with English summary in insert]. Avtom.i telem. 17 no.11: 979-984 N '56. (MLRA 9:12)

(Electric relays)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

SUBJECT USSR/MATHEMATICS/Applied mathematics CARD 1/1 PG - 561
AUTHOR OSTROVSKI G.M.
TITLE Graphical integration of some non-linear equations of the theory of oscillations.
PERIODICAL Vestnik Moskovsk Univ. 11, 5, 25-30 (1956)
reviewed 2/1957

The author gives rather simple graphical solution methods for special differential equations of second order, where he always utilizes the individual properties of the considered type of equations. There are considered:

$$\ddot{x} + f_1(x)\dot{x} + kx = 0$$
$$\ddot{x} + f(x)\,\dot{x} + \varphi(x) = 0$$
$$\ddot{x} + f(x)\,\dot{x} + x = \varphi(t).$$

INSTITUTION: Lomonossov University, Moscow.

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

KAZAKEVICH, V.V.; OSTROVSKIY, G.M.

Drying friction in a servomotor as a cause of self-oscillations in control units. Avtom. upr. i vych. tekh. no.2:296-317 '59. (MIRA 13:2)

(Servomechanisms)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M.

A method for improving the quality of control systems using nonlinear and computing devices. Avtom. upr. i vych. tekh. no.3:373-418 '60.

(Automatic control) (MIRA 13:11)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

OSTROVSKIY, G.M. (Moskva)

Optimization of complex industrial chemical systems. Izv. AN SSSR. Tekh. kib. no.[illegible] 71 [illegible] '64. [illegible]

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

VOLIN, Yu.M. (Moskva); OSTROVSKIY, G.M. (Moskva)

Optimization of continuous production processes described by systems of ordinary differential equations. Izv. AN SSSR. Tekh. kib. no.5:137-142 S-O '65. (MIRA 18:11)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 17554-66 EWT(d)/T/EWP(1) IJP(c)

ACC NR: AP6002158 SOURCE CODE: UR/0280/65/000/006/0146/0151

AUTHOR: Ostrovskiy, G. M. (Moscow); Volin, Yu. M. (Moscow); Malkin, I. I. (Moscow)

ORG: none

27
B

TITLE: Method for solving optimal problems with boundary conditions

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 6, 1965, 146-151

TOPIC TAGS: optimal problem, successive approximation, boundary value problem

16,44,55

ABSTRACT: A method of successive approximations is offered for solving the problems with boundary conditions at the right end of the integration interval. This system of ordinary differential equations is considered: $\frac{dx_i}{dt} = f_i(x_1, \ldots, x_n, u_1, \ldots, u_r)$, $i = 1, \ldots, n$, where x_i are phase coordinates and u_i are control variables. With initial values of $x_i(0) = a_i$ known, find such control variables $u_j = u_j(t)$ that at $t = T$, one of the coordinates, e.g., x_1 be minimized and other coordinates take on these specified values: $x_i(T) = b_i$, $i = 2, \ldots, n$. A method of finding the derivatives

Card 1/2

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ACC NR: AP6002158

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$\partial x_i(\bar{T}) / \partial u_j$ is set forth. This method is combined with J. B. Dennis' method of intersecting hyperplanes and steepest descent and a repeated procedure of approximations is used. An example of the determination of optimal temperatures in a reactor producing maleic anhydride illustrates the method. Orig. art. has: 36 formulas and 1 table.

SUB CODE: 12 / SUBM DATE: 10Mar64 / ORIG REF: 005 / OTH REF: 001

Card 2/2 mst

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"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 44757-65 EPF(n)-2/EWP(k)/EWP(h)/EWT(d)/EWP(1)/EWP(v) Pf-4/Pg-4/Pk-4/
Pl-4/Po-4/Pq-4/Pu-4/Pae-2 IJP(c) WW/BC

ACCESSION NR: AP5008316 S/0103/65/026/003/0435/0442

AUTHOR: Ostrovskiy, G. M. (Moscow)

63

TITLE: Method for designing optimal systems

B

SOURCE: Avtomatika i telemekhanika, v. 26, no. 3, 1965, 435-442

TOPIC TAGS: automatic control, automatic control design, automatic control system, automatic control theory, optimal automatic control

ABSTRACT: A method of successive approximations based on gradient principles is proposed for designing optimal automatic-control systems. As the maximum approach after L. S. Pontryagin, et. al. ("Mathematical theory of optimal processes", Fizmatgiz, 1961) often results in unstable solutions of the differential equations involved, the use of a modified R. I. Stakhovskiy approach (Avt. i telemekhanika, v. 24, no. 7, 1963) based on gradient methods is suggested. Techniques of partitioning the integration interval and of setting up differential equations in the most efficient way are described. Orig. art. has: 1 figure and 57 formulas.

ASSOCIATION: none

SUBMITTED: 27Dec63 ENCL: 00 SUB CODE: IE, DP

NO REF SOV: 005 OTHER: 001

Card 1/1

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

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L 57066-65 EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EPR Pr-4/Ps-4/Pu-4 WW

ACCESSION NR: AP5014942 UR/0040/65/029/003/0593/0598

AUTHORS: Volin, Yu. M. (Moscow); Ostrovskiy, G. M. (Moscow)

31
B

TITLE: On one problem of optimization of a system with distributed parameters

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 3, 1965, 593-598

TOPIC TAGS: reactor, reactor control, reactor theory, optimal control theory, approximation method

ABSTRACT: The problem of optimizing a series of reactors 19 is studied. Each reactor is described by a system of equations

$$\frac{\partial x_i}{\partial l} = f_i(x, y) \quad (i = 1, \ldots, n), \qquad \frac{\partial y_j}{\partial t} = \varphi_j(x, y) \quad (j = 1, \ldots, p),$$

where $x = (x_1, \ldots, x_n)$ is the variable vector characterizing the state of the system in a given section of the reactor (material concentration, temperature, pressure, etc.), and $y = (y_1, \ldots, y_p)$ is the variable vector characterizing the state of the catalyzer, l is the flow length of the reactor, and t is sidereal time. The optimization problem is represented in terms of Fig. 1 on the Enclosure. In the l, t plane a region D is defined by the rectangle 0, l, A, T. The points $l_1, \ldots, l_{r-1}$

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ACCESSION NR: AP5014942

divide the region into r parts, and the points $l_0, \ldots, l_r$ correspond to the beginnings and ends of reactors. Within each rectangle

$$D_\alpha (l_\alpha < l < l_{\alpha+1}, \quad 0 < t < T; \alpha = 0, \ldots, r-1),$$

the variables $x_i(l,t)$ satisfy the stated equation system. Along the lines $l = l_\alpha$ certain variables are continuous, so that

$$x_i(l_\alpha - 0, t) = x_i(l_\alpha + 0, t)$$

$$(\alpha = 1, \ldots, r-1; i = 1, \ldots, n_1 - 1).$$

The remaining variables $x_i(l, t)$ $(i = n_1, \ldots, n)$ can be discontinuous. Additional definitions are concerned with the differentiability of the given functions; these definitions are also given in relation to the framework of the rectangles D. The optimality problem is then a case of finding functions $x_i(l_\alpha + 0, t)$ $(\alpha = 0, \ldots, r-1; i = n_1, \ldots, n)$, such that the integral

$$I = \int_0^T x_1(l_r, t)\, dt$$

assumes an optimum value. The authors derive the necessary optimality conditions and discuss the application of an approximation method in finding optimal values of control variables. Orig. art. has: 34 equations and 1 figure.

Card 2/4

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L 57066-65

ACCESSION NR: AP5014942

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ASSOCIATION: none

SUBMITTED: 02Oct64 ENCL: 01 SUB CODE: NP, IE

NO REF SOV: 006 OTHER: 001

Card 3/4

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

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APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

SNAGOVSKIY, Yu.S.; LYUBAVSKIY, G.I.; OSTROVSKIY, [illegible]

Kinetics of benzene hydrogenation at atmospheric and higher pressures. Dokl. AN SSSR 161 no.1:[illegible]-135 Mr '[illegible].

[illegible]

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova. Submitted July 3[illegible], 19[illegible].

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

ACC NR: AP7002086 SOURCE CODE: UR/0103/66/000/012/0029/0036

AUTHOR: Volin, Yu. M. (Moscow); Ostrovskiy, G. M. (Moscow)

ORG: none

TITLE: Optimization of arbitrary-structure processes

SOURCE: Avtomatika i telemekhanika, no. 12, 1966, 29-36

TOPIC TAGS: automatic control system, optimization, optimal automatic control, automatic control R and D

ABSTRACT: The optimization of automatic control systems by gradient techniques treated by E. S. Lee (Ind. & Engg. Chemistry, Fund., v. 3, no. 4, 1964), M. M. Denn et al. (op. cit., v. 4, nos. 1-3, 1965), and other researchers is generalized in the present article. A concept of a conjugate process is introduced which is a generalized analog of the conjugate system in conventional variational problems.

Card 1/2 UDC: 62-50

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ACC NR: AP7002086

The conjugate process is obtained through complete inversion of inputs and outputs of the original process, the result being described by conjugate equations for each process section. The first variation of the optimized quantity is used; process sections with distributed parameters are also covered. The method of successive approximations is used to find the maximum of a combined criterion (object function) Φ of inputs, outputs, and controls. Approximation of optimization relations is illustrated by an example of a recycling-type (chemical) process. Orig. art. has: 4 figures and 25 formulas.

SUB CODE: 09, 13 / SUBM DATE: 08Jan66 / ORIG REF: 003 / OTH REF: 004

Card 2/2

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

VOLIN, Yu.M. (Moskva); OSTROVSKIY, G.M. (Moskva)

Concerning an optimum problem. Avtom. i telem. 25 no.10: 1414-1420 O '64. (MIRA 17:12)

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4"

"APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001238510016-4

L 2590-66 EWT(d)/EPF(n)-2/EWP(v)/EWP(k)/EWP(h)/EWP(1) IJP(c) WW/BC

ACCESSION NR: AP5019401 UR/0103/65/026/007/1197/1204

62-505

AUTHOR: Volin, Yu. M. (Moscow); Ostrovskiy, G. M. (Moscow)

TITLE: Method of successive approximates for calculating the optimal conditions in some systems with distributed parameters

SOURCE: Avtomatika i telemekhanika, v. 26, no. 7, 1965, 1197-1204

TOPIC TAGS: optimal control system, automatic control theory

ABSTRACT: As the system of differential equations, to which variational problems can be reduced, is often unstable, a different method based on successive improvements of control functions — from the viewpoint of the accepted criterion — is suggested. The method uses a gradient procedure and is suitable for optimization of automatic-control systems describable by partial differential equations, such as these:

$$\frac{\partial x_i}{\partial t} = f_i(x, y, u) \quad (i = 1, 2, \ldots, n),$$

$$\frac{\partial y_j}{\partial t} = \varphi_j(x, y, u) \quad (j = 1, 2, \ldots, p).$$

Card 1/2

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ACCESSION NR: AP5019401

Its solution is sought in a rectangle D $0 \leqslant l \leqslant L$, $0 \leqslant t \leqslant T$ with these boundary conditions: $x(0,t) = x^0(t)$, $y(l,0) = y^0(l)$. A control $u(l,t) = (u_1(l,t), \ldots, u_m(l,t))$, is found, which maximizes $I = \int_0^T x_1(L,t)\,dt$; here, T may be either a fixed or a variable quantity. It is proven by two theorems that for calculating all partial derivatives, at each step, it is sufficient to solve the initial set of equations once and an auxiliary conjugate set once. Orig. art. has: 1 figure and 36 formulas.

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